

# Mineral Industry Surveys

**For information, contact:**

Donald W. Olson, Abrasives Commodity Specialist  
U.S. Geological Survey  
983 National Center  
Reston, VA 20192  
Telephone: (703) 648-7721, Fax: (703) 648-7975  
E-mail: [dolson@usgs.gov](mailto:dolson@usgs.gov)

Jesse J. Inestroza (Data)  
Telephone: (703) 648-7968  
Fax: (703) 648-7975  
E-mail: [cpisut@usgs.gov](mailto:cpisut@usgs.gov)

**Internet:** <http://minerals.usgs.gov/minerals>

## MANUFACTURED ABRASIVES IN THE FIRST QUARTER 2004

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

### Fused Aluminum Oxide

The total production during the first quarter of 2004 was less than 2,500 metric tons of regular-grade crude fused aluminum oxide. Only one company, which operates one plant in Canada, produced fused aluminum oxide. The production quantity is not reported to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide through February 2004 were 31,600 tons valued at \$6.78 million, or an average of \$214 per ton. About 97% of the imports came from China, nearly 3% from Canada, and less than 1% from other countries. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide through the month of February 2004 reached 10,300 tons valued at \$7.67 million, or an average of \$746 per ton. The top five sources of the refined and ground imports were Venezuela (39%), Germany (13%), Brazil (13%), China (9%), and Austria (7%). Low-cost imports of fused aluminum oxide grain from China also have increased in recent years. The imports, however, reportedly include refractory-grade material as well as abrasive grain.

U.S. exports of fused aluminum oxide through February 2004 were 1,930 tons. The exports were valued at \$5.67 million, or \$2,940 per ton. Canada received 28% of the exports that were shipped; Germany 24%, Mexico 14%, and Japan 11%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the first quarter of 2004, the Department of

Defense reported sales of 1,810 tons of fused aluminum oxide abrasive grain valued at \$606,000. At the end of the quarter, NDS reported 8,290 tons of fused aluminum oxide abrasive grain with an estimated value of \$3.1 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2004). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current authorized disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain could be sold by the end of 2004.

### Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the first quarter of 2004 was 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$5.3 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through February 2004 were 18,900 tons valued at \$6.40 million; imports from China alone were 15,200 tons valued at \$4.66 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$469 per ton; the average price of Chinese crude was \$306 per ton. U.S. imports of refined and ground silicon carbide for the same period were 7,000 tons valued at \$6.82 million, or an average of \$974 per ton. During the period, China accounted for 80% of the crude material and 34% of the refined and ground material.

U.S. exports of crude silicon carbide through February 2004 were reported to be 532 tons with a value of \$787,000. Exports of refined and ground silicon carbide were 1,890 tons valued at \$1.37 million. About 98% of the crude material was shipped to, in decreasing order, Norway, Japan, Mexico, and Finland. Most of the refined material went to, in decreasing order, Canada, Mexico, and the United Kingdom.

The NDS has sold all of the silicon carbide in the stockpile. No further stockpiling is anticipated.

## **Metallic Abrasives**

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the first quarter of 2004, six companies produced 46,000 tons of steel shot and grit, a decrease of 15%, compared with the same period in 2003. At least one of the companies produced shot and grit from reclaimed material. Total first quarter production was valued at \$20.8 million, or an average of \$451 per ton. Total annual production in 2003 was 192,000 tons valued at \$86.2 million; 2002 production was 201,000 tons valued at \$91 million.

Shipments of steel shot and grit in the first quarter of 2004 were 51,600 tons valued at \$24.4 million, or an average of \$473 per ton, compared with shipments during the first quarter of

2003, which were 53,900 tons valued at \$24.9 million for an average of \$462 per ton.

First quarter production of other types of metallic shot and grit (primarily cut wire shot) was 349 tons valued at \$1.19 million. Six companies produced shot.

Imports of all types of metallic shot and grit through February 2004 were 2,620 tons valued at \$1.52 million for an average of \$578 per ton. Canada was the largest supplier, accounting for 63% of the tonnage imported.

Exports of all types of metallic abrasives through February 2004 were 3,910 tons valued at \$2.69 million, or an average of \$687 per ton. Shipments to Canada accounted for 54% of the exports; an additional 39% was shipped to Mexico.

TABLE 1  
MANUFACTURED ABRASIVES<sup>1</sup>

(Metric tons, unless otherwise specified)

Source and product	2003								2004	
	First quarter		Second quarter		Third quarter		Fourth quarter		First quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: <sup>2</sup>										
Silicon carbide <sup>3</sup>	10,000	\$5,800	10,000	\$5,500	10,000	\$5,100	10,000	\$4,900	10,000	\$5,300
Crude aluminum oxide, regular-grade	5,000	1,400	15,000	4,300	(4)	(5)	(4)	(5)	(4)	(5)
United States, production:										
Steel shot and grit	54,000	24,600	46,500	20,900	49,200	21,900	42,100	18,800	46,000	20,800
Other shot and grit <sup>c, 6</sup>	274	1,180	267	1,000	334	1,190	345	1,250	349	1,190
Total	54,300	25,800	46,800	21,900	49,500	23,000	42,400	20,000	46,400	22,000
United States, shipments:										
Steel shot and grit	53,900	24,900	52,400	24,600	57,400	27,000	46,600	21,400	51,600	24,400
Other shot and grit <sup>c, 6</sup>	279	1,260	271	1,110	310	1,280	323	1,320	341	1,260
Total	54,200	26,200	52,700	25,700	57,800	28,300	46,900	22,700	52,000	25,700

<sup>c</sup>Estimated.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

<sup>3</sup>Includes materials for metallurgical uses and other applications.

<sup>4</sup>Less than 2,500 tons.

<sup>5</sup>Less than \$500,000.

<sup>6</sup>Includes cut wire shot and reclaimed shot and grit from primary producers.